

Sump Pump



Equipment Description

The purpose of a sump pump is to move unwanted water from within a basement or under the basement floor to outside the home. A sump pump is a motor-driven pump that is generally activated by a float or pressure switch. The pump suction is taken at a low point, usually a drainage pit (called a sump), and uses a check valve-equipped (one-way flow) discharge pipe. Most sump pumps use standard household current, and are equipped with water level alarms (usually battery powered) to alert if the pump is not working properly or not removing the water.

Sump pumps have been used since the early part of the 20th century in homes in low-lying areas or in places where rapidly melting snow can lead to flooded basements. However, the U.S. Federal Clean Water Act (1970 with 1987 and 1990 updates) made sump pumps a requirement in new homes that aren't necessarily at a high risk for flooding. Sump pumps are common today.

Loss Scenario

The most common reason for sump pump failure is lack of electrical power to the pump's motor. This frequently happens during a power outage, and the pump will work again when the power is restored. Installation of an uninterruptible power supply (UPS) type power supply will enable continued operation (to the capacity of the UPS system) during power outages.

When the sump pump runs infrequently in a moist environment, the float-operated control systems can corrode, become inoperable, and will not activate the pump.

Repeated electrical surges and/or intake of debris can overload the unit and cause the motor to fail. Replacement of the unit is usually required.

Size and Carbon Footprint

Electrical loading to operate a sump pump can vary widely and is dependent upon a combination of many factors such as the desired flow in gallons per minute, size of the discharge pipe, discharge head pressure and the size of the basin (sump) to be pumped. The most common sizes installed in homes are one third to one half horsepower. A typical sump pump is rated at about 800 watts (W) when in normal operation with a surge (starting) rating of about 2,000 W. The typical annual energy use is less than a .5 kilowatt-hour (kWh), resulting in less than one pound of carbon dioxide (CO₂) emissions.

Maintenance Tips

- Understand and adhere to the installation, maintenance and testing guidelines provided by the original equipment manufacturer of the pump.
- If an uninterruptible power supply (UPS) is used, follow the installation, maintenance and testing guidelines provided by the original equipment manufacturer of the power supply.
- At least monthly during the active season, inspect the pump condition and the float/pressure switch actuator for proper operation and any deterioration.

Loss Prevention Tips

- At least monthly during the active season, inspect and test the water level alarm device.
- Make sure that the pump is mounted properly in a vertical orientation. If the pump leans too much or even falls over, the float actuator device will not operate properly.
- Since sump pumps are intended to operate in a moist environment, it is advisable to power them through a ground fault circuit interrupter (GFCI) outlet circuit to minimize potential for electrical injury to people and equipment.
- If water intrusion into the sump requires the pump to operate more than seasonally, and typically only a few times a day, steps should be taken to determine and correct the cause of the water intrusion to reduce risk of serious internal flooding and damage to your home's foundation.